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Table of Contents

Coupling for Coping, CoOPLAaGE: an integrative strategy and toolbox fostering multi-level hydrosocial adaptation

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ABSTRACT

We introduce CoOPLAaGE, a meta-strategy and the related toolbox, supporting effective transformation in multi-level hydro-social systems, through participatory decision and implementation. Building on a set of international and diverse case studies over 15 years (Daniell et al., 2010)(Emeline Hassenforder, Ferrand, Pittock, Daniell, & Barreteau, 2015)(Legrand, Ducrot, Van Paassen, Monteiro, & Rousseau, 2014; Pommerieux, Bourblanc, & Ducrot, 2014)(Ferrand, Hassenforder, Ducrot, Barreteau, & Abrami, 2013)(Magombeyi, Rollin, & Lankford, 2008), selected principles, methods and tools have been improved and harmonized to support transformative processes at all governance and operations' scales. (Re-)Coupling scales, sectors, actors and perspectives, issues, methods, decision' steps is a complex challenge, with technical, social, procedural, methodological dimensions (see e.g. Saravanan, Mcdonald, & Mollinga, 2009). Through an integration and implementation focus, it can enhance the efficiency of public intervention and the mutual benefit from all actors' efforts. In this note, we summarize the key principles and expose an overview of this strategy. We develop the different components of CoOPLAaGE: PrePar for participatory engineering of decision procedures, SMAG for baseline governance assessment, Just-A-Grid for distributive justice dialogue, Wat-A-Game for participatory modeling and simulation, CooPlan for participatory planning, ENCORE-ME for monitoring and evaluation and Scoolplaage for capacity building.

COUPLING-FOR-COPING: RATIONALES & APPROACH

Isolation, sectoral "silo-ing", segmentation, disciplinary attachment, stakeholders' exclusion, social des-integration or segregation, methodological specialization, mono-specific productivism, horizontal concentration, short-term-ness, science-society gaps, reductionism, etc., are all forms of protective specializations, often driven by "optimization" and control issues (Mitchell, 2005; Serageldin, 1995). While being promoted by several strategic and systemic drivers, they restrain adaptive capacity, synergies, creativity, coordination, common pool resource management dynamics, low-cost low-intervention social transformation (Pahl-Wostl, 2009). Such situation is clearly paradoxical in a context of economic globalization and wide "networking", but it does also mirror top-down "divide-and-rule" strategies and bottom-up individuals' willingness to simplify, master self' complex dependencies and desaturated from information overflow.

When acknowledged, the coupling-for-coping target dimensions are diverse: actors (participation), scales (vertical integration), issues or sectors (horizontal integration), methods (complementarity and methodological independence), disciplines (interdisciplinary), decision steps (from normative to cognitive, operational and relational), solutions' types (technical & non-technical). Each has its own rationale and attached approaches, while the transversal coherency also has to be improved among them. Conversely, in a context of reduced public (top-down) intervention capacity, general decentralization and search for resilience, local autonomy has to be strengthened (Andersson & Ostrom, 2008). This may appear first as a decoupling attempt, but by cutting external links and dependency, it de-facto should lead to re-coupling internally inside the social groups and the environment, looking for local and mutual (circular) solutions.

In such context, our strategy has been to engineer and promote a proactive and multi-dimensional coupling dynamic (Daniell & Barreteau, 2014), using series of tools supporting the key decision and implementation needs, in a coherent manner. Designed and tested case after case, they constitute together a versatile solution environment for water and land management, with all stakeholders.

[7] Géraldine Abrami, Emeline Hassenforder, Benjamin Noury, Raphaële Ducrot, Stefano Farolfi, Patrice Garin, Bruno Bonté, Sylvie Morardet, Delphine L'Aot

THE OVERALL PARTICIPATORY DECISION CHAIN

Before introducing the detailed steps and methods, we describe the overall re-coupling process in the decision chain. The typical steps are as in Figure 1, combined with monitoring and evaluation.

Figure 1 : Participatory decision steps in Ethiopia & Uganda (Afromaison FP6 project) - Hassenforder, 2015

They follow a classical framework procedure, but include at least two specific stages:

1. An initial participatory decision about the participation itself, used to establish the common procedural rules (recoupling procedural and substantive decision making);

2. A coupled use of participatory modeling, simulation (role-playing games) and explicit planning, with dual exchanges between them: games used to foster creative and coherent action and strategy design vs. integrated plans to be tested in games.

In the current design procedures (PrePar, see below) we push 8 main decision steps to be addressed: building a participation plan, diagnosis, scenario exploration (incl. modeling), setting goals, values and constraints, identifying actions and plans, choosing, implementation, monitoring and evaluation. By making stakeholders parsing these and setting their preferred participation intensity, we get them to consider the diversity and complementarity of decision stages, and recouple issues, values, information and other actors' perspectives.

THE STEPS AND TOOLS OF THE COOPLAAGE FRAMEWORK

1. Planning participation with PrePar

In this initial step, participants have to agree their future participation plan and rules: who will participate to which decision step, and how. By addressing openly the procedure and common rules early, it recouples participants with their own commitments, their roles and collaboration conditions. Open to all citizens it supports new forms of complementarity between representative and participatory democracy (e.g. Kohler-Koch, 2007; Trenz, 2009). It also elaborates on warrants and participation charters[8].

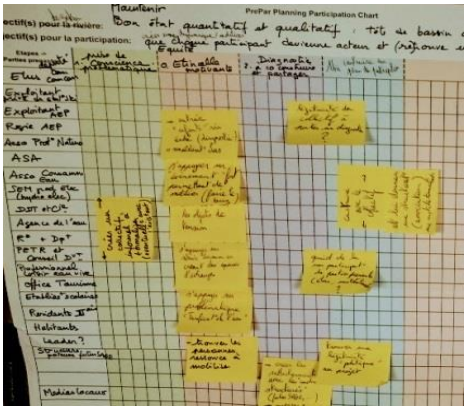

Figure 2 : A PrePar pre-participation plan

In PrePar ("Pre-Participation"), all participants (including citizens), using reference information on participatory decision and methods, discuss participatory aims,

[8] See e.g. the Public participation Charter developed by the French Ministry of Environment, Energy and Sea at the following link: www.developpement-durable.gouv.fr/IMG/pdf/16227_Charte__participation__democratie__participative.pdf

stakeholders, decision steps, participatory actions, roles and finally rules. They build a participation program, which will guide them later. This is crucial for future mutual trust, respect between citizens and elected bodies, and reference for procedural arbitration.

2. Learning to participate with SCoOLPLAaGE 2nd order training

Learning to participate or to "let-them-participate" requires training, access to practical exercises, simple references and time. In this step, participants are guided together in simulated participatory processes, directly mimicking their real situations, and using the proposed methods. They are directly challenged by having to become immediate trainers (or "traineers") of other groups, associating their own practical learning with an actual participatory process, which they steer and facilitate. This recouples small initial "traineers" groups with larger social assemblies, and triggers trust in their autonomous capacity for the process. The SCoOLPLAaGE training toolkit includes classical material and online support websites, which "traineers" have to follow and fill step-by-step as in real operations. More than 60 training cases have been implemented. A very online training course for groups (MOOC "TerrEau & Co", AgreenCamp 201--2017) is currently being developed, to replace in-person group training.

Figure 3 : A SMAG mapping process (Interreg SPARE 2016)

3. Assessing past governance with SMAG

Looking toward the past of management and governance is a way to enlighten the future. Next step offers some selected participants to reanalyze, model and map the past water governance. It is based on participatory modeling techniques, but applied to past decision processes.

With SMAG (Self-Modeling for Assessing Governance), participants assess the scope of past decisions, the main actors, the most important decisions, their causes and impacts and look at key factors to analyze the governance regimes. They build a transferable map of the history and infer key findings for future changes. Thereby it couples the past and the future.

4. Modeling and playing for changing together with Wat-A-Game

Participatory Modeling is a key process for coupling the used reference models with the reality and the perceptions, and for coupling very diverse issues: environment, society, technologies, current and future activities (ComMod, 2005; Voinov & Bousquet, 2010). All stakeholders can participate in the design of their own models which become appropriate with their own life and decision cycle. In a second stage these models are used for open multi-level participatory simulations, or role-playing games, where all participants can explore and understand, change, test and normalize practices and policies. Between lay people and intermediary stakeholders, they enter in virtual change and can tackle individual and collective conditions.

Figure 4 : Participatory Modeling in Kenya

Figure 6 : an INIWAG model for irrigation scheme

Wat-A-Game (WAG) is an open versatile toolkit for hydro-social systems modeling and role-playing games. INI-WAG is a robust simple physical kit used for initiation, dialogue and opening phase for future specialized modeling. It's combined with online model editing tools, and knowledge management for the users' community. WAG has been used in more than 110 cases (Geraldine Abrami et al., 2012)(Géraldine Abrami et al., 2016).

Figure 5 : The INIWAG kit

5. Framing distributive justice principles with Just-A-Grid

Sharing resources requires coupling various stakeholders' expectations, based on fundamental justice principles. By letting stakeholders express, share and recouple their justice principles before addressing the operational dilemmas, we help framing the "deep" social and policy orientations (Neal (Patrick), Lukasiewicz, & Syme, 2014; Venot & Clement, 2013). Just-A-Grid is a simple adaptable protocol by which participants can formulate first individually then share collectively their distributive justice principles, and search for compromises. A debate is organized to share arguments. Later this farming can be referred to for assessing the final strategies. Controlled experiments have been used to assess the coupling with other participatory tools (Ferrand, Hassenforder, Abrami, & Daniell, 2014).

Figure 7: A Just-A-Grid process in Ethiopia

6. Integrative multi-level planning with CooPlan


Figure 8: Participatory modeling in Uganda

Participatory planning is a central re-coupling process for sectors, scales, actors, temporalities, technical and social realms (Ridder, Mostert, & Wolters, 2005). All stakeholders, from citizens to governments, are expected to formulate and structure actions' proposals, technical, social or political, to share them, and later to choose among them "strategic bricks" which can be used to build common action plans. These candidate strategies are assessed for coherency, feasibility and efficiency, and finally adapted and chosen. CooPlan is a protocol developed since 2004 which supports anyone in such process, using simple adaptable frameworks, but providing capacity to recouple very diverse actions and visions, to get really integrated territorial strategies. CooPlan meta-models address needs, impacts and uncertainties. It can use Wat-A-Game for testing the plans, or to trigger creativity.

7. Monitoring & Evaluation with ENCORE-ME

Monitoring and evaluation (M&E) is usually decoupled from the process' participants (externalization for neutrality)(Datta, 1999). We argue that for fair piloting and enlightened engagement of participants it has to be recoupled, and taken as a reflexivity trigger, opening to adaptive management (Boyd et al., 2007). We especially focus on impact M&E to tackle efficiency of the process (Williams, 2015). Meanwhile most M&E are driven by an analytical disciplinary or political perspective. But processes are hybrid, complex and multi-dimensional. Hence M&E has also to recouple disciplines and change' dimensions.

ENCORE-ME (Ferrand, Le Bars, 2004) stands for "External / Normative / Cognitive / Operational / Relational / Equity" dimensions, which have to be monitored. Each requires a different disciplinary perspective and the attached tools. The entire procedural cost of such recoupled M&E can be high, but it does provide a comprehensive assessment of what changes. It can be done implemented either by external observers or led internally by the groups themselves (participatory M&E). Hassenforder (2016) has improved the framework to account for institutional change (E. Hassenforder, Pittock, Barreteau, Daniell, & Ferrand, 2016; E. Hassenforder, Smajgl, & Ward, 2015; Emeline Hassenforder et al., 2016).

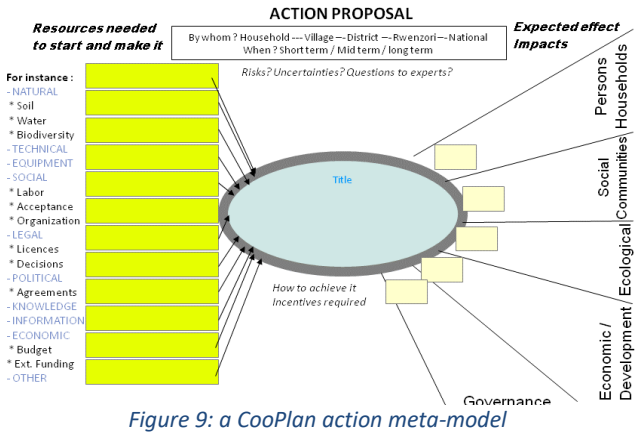

Figure 9: a CooPlan action meta-model

CONCLUSION

PrePar, SCoOLPLAaGE, SMAG, Just-A-Grid, Wat-A-Game, CooPlan, ENCORE-ME constitute a comprehensive and coupled set of methods covering a wide scope of decision needs and steps for participatory water and land management. They have been tested in many countries worldwide and by coupling them we have shown are it can actually recouple actors, issues, scales, needs, in order to improve real sustainability of socio-environmental systems.

In current international projects, we try to strengthen robustness and full transferability of these tools, with the perspective of rapid second Order Transfer. Online tools are being developed to support process design and piloting (procedural workflow) and improve capitalization throughout the case studies.

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